

Appln. No. 10/647,678
Amd. dated December 13, 2004
Reply to Office Action of September 15, 2004

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in this application.

LISTING OF CLAIMS:

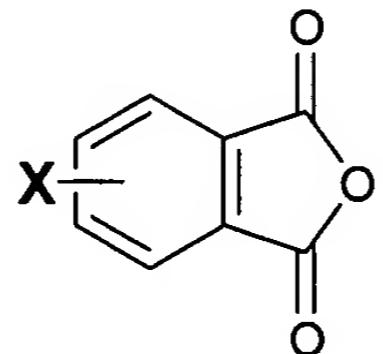
1. (cancelled)
2. (cancelled)
3. (cancelled)
4. (cancelled)
5. (cancelled)
6. (cancelled)
7. (cancelled)
8. (cancelled)
9. (cancelled)
10. (currently amended) A method for reducing the polydispersivity of a high molecular weight polyetherimide resin comprising:
forming a polyetherimide solution using a solvent selected from the group consisting of o-dichlorobenzene and anisole;
contacting the polyetherimide solution with an anti-solvent selected from the group consisting of toluene, ketones, acetone, tetrahydrofuran, xylenes, and dioxane wherein the

anti-solvent is capable of dissolving low molecular weight species but not the high molecular weight polyetherimide;

allowing phase separation to occur to obtain a light phase and a heavy phase; and recovering the desired polyetherimide from the heavy phase, wherein the resulting polyetherimide possessed a polydispersivity ranging from about 1.5 to about 2.5.

11. (original) The method of claim 10 wherein the step of forming a polyetherimide resin further comprises forming a polyetherimide by reacting a bis-halophthalimide with at least one alkali metal salt of a dihydroxy-substituted aromatic compound in the presence of a phase transfer catalyst.

12. (original) The method of claim 11 wherein the step of forming the polyetherimide comprises reacting a bis-halophthalimide produced by reacting a diamino compound with an anhydride having the following formula



(II)

wherein X is selected from the group consisting of nitro, nitroso, tosyloxy, halogen and mixtures thereof, with at least one alkali metal salt of a dihydroxy-substituted aromatic compound in the presence of a phase transfer catalyst.

13. (currently amended) The method of claim 11 wherein the step of forming the polyetherimide comprises reacting a bis-halophthalimide ~~halophthalimide~~ produced by reacting a diamino compound with an anhydride selected from the group consisting of 3-chlorophthalic anhydride, 4-chlorophthalic anhydride, dichloro phthalic anhydride, phthalic anhydride and mixtures thereof, with at least one alkali metal salt of a dihydroxy-substituted aromatic compound in the presence of a phase transfer catalyst.

14. (currently amended) The method of claim 13 ~~14~~ wherein the step of forming the polyetherimide comprises reacting the anhydride with a diamino compound selected from the group consisting of ethylenediamine, propylenediamine, trimethylenediamine, diethylenetriamine, triethylenetetramine, heptamethylenediamine, octamethylenediamine, 1,12-dodecanediamine, 1,18-octadecanediamine, 3-methylheptamethylenediamine, 4,4-dimethylheptamethylenediamine, 4-methylnonamethylenediamine, 2,5-dimethylhexamethylenediamine, 2,2-dimethylpropylenediamine, N-methyl-bis(3-aminopropyl)amine, 3-methoxyhexamethylenediamine, 1,2-bis(3-aminopropoxy)ethane, bis(3-aminopropyl) sulfide, 1,4-cyclohexanediamine, bis-(4-aminocyclohexyl)methane, m-phenylenediamine, p-phenylenediamine, 2,4-diaminotoluene, 2,6-diaminotoluene, m-xylylenediamine, p-xylylenediamine, 2-methyl-4,6-diethyl-1,3-phenylenediamine, 5-methyl-4,6-diethyl-1,3-phenylene-diamine, benzidine, 3,3'-dimethylbenzidine, 3,3'-dimethoxybenzidine, 1,5-diaminonaphthalene, bis(4-aminophenyl)methane, bis(2-chloro-4-amino-3,5-diethylphenyl)methane, bis(4-aminophenyl)propane, 2,4-bis(β -amino-t-butyl)toluene, bis(p- β -methyl-o-aminopentyl)benzene, 1,3-diamino-4-isopropylbenzene, bis(4-aminophenyl) sulfone, bis(4-aminophenyl) ether, 1,3-bis(3-aminopropyl)tetramethyldisiloxane and mixtures thereof.

15. (original) The method of claim 12 wherein the step of forming the polyetherimide comprises reacting a bis-halophthalimide produced by reacting an anhydride with a diamino compound selected from the group consisting of m-phenylenediamine and p-phenylenediamine, with at least one alkali metal salt of a dihydroxy-substituted aromatic compound in the presence of a phase transfer catalyst.

16. (original) The method of claim 11 wherein the step of forming the polyetherimide resin further comprises forming a polyetherimide by reacting a halophthalimide with bisphenol A disodium salt.

17. (original) The method of claim 11 wherein the step of forming the polyetherimide resin further comprises reacting a halophthalimide with at least one alkali metal salt of a dihydroxy-substituted aromatic compound in the presence of a phase transfer catalyst

selected from the group consisting of hexaalkylguanidinium alkane salts and α,ω -bis(pentaalkylguanidinium)alkane salts.

18. (cancelled)

19. (original) The method of claim 10 wherein the step of forming the polyetherimide solution further comprises heating the polyetherimide solution to a temperature ranging from about 50° C. to about 180 ° C.

20. (original) The method of claim 10 wherein the step of forming the polyetherimide solution further comprises heating the polyetherimide solution to a temperature ranging from about 80° C. to about 110°.

21. (cancelled)

22. (original) The method of claim 10 wherein the step of contacting the polyetherimide solution with the anti-solvent comprises adding anti-solvent in an amount ranging from about 1/10 to about 1/2 by weight of the solvent in the polyetherimide solution.

23. (original) The method of claim 10 wherein the step of contacting the polyetherimide solution with the anti-solvent comprises adding anti-solvent in an amount of about 1/3 by weight of the solvent in the polyetherimide solution.

24. (original) The method of claim 10 wherein the step of contacting the polyetherimide solution with the anti-solvent further comprises heating to a temperature ranging from about 100° C. to about 180° C.

25. (original) The method of claim 10 wherein the step of contacting the polyetherimide solution with the anti-solvent further comprises heating to a temperature ranging from about 135° C. to about 150° C.

26. (original) A polyetherimide resin produced in accordance with the method of claim 10.

27. (cancelled)

28. (currently amended) ~~A The method of claim 27 wherein the step of for reducing the polydispersivity of a high molecular weight polyetherimide resin comprising:~~

~~forming a polyetherimide solution comprises using a solvent selected from the group consisting of o-dichlorobenzene and anisole and by reacting a diamino compound selected from the group consisting of m-phenylenediamine and p-phenylenediamine with an anhydride selected from the group consisting of 3-chlorophthalic anhydride, 4-chlorophthalic anhydride, dichloro phthalic anhydride, phthalic anhydride and mixtures thereof to produce a halophthalimide, and then reacting the halophthalimide with bisphenol A disodium salt in the presence of a phase transfer catalyst selected from the group consisting of hexaalkylguanidinium alkane salts or a α,ω -bis(pentaalkylguanidinium)alkane salts;~~

~~contacting the polyetherimide solution with an anti-solvent capable of dissolving low molecular weight species but not the high molecular weight polyetherimide selected from the group consisting of toluene, ketones, acetone, tetrahydrofuran, xylenes, and dioxane;~~

~~allowing phase separation to occur to obtain a light phase and a heavy phase; and~~

~~recovering the desired polyetherimide from the heavy phase, wherein the resulting polyetherimide possessed a polydispersivity ranging from about 1.5 to about 2.5.~~

29. (currently amended) The method of claim ~~28~~ 27 wherein the step of forming the polyetherimide solution further comprises heating the polyetherimide solution to a temperature ranging from about 50° C. to about 180 ° C.

30. (currently amended) The method of claim 28 ~~27~~ wherein the step of forming the polyetherimide solution further comprises heating the polyetherimide solution to a temperature ranging from about 80° C. to about 110°.

31. (currently amended) The method of claim 28 ~~27~~ wherein the step of contacting the polyetherimide solution with the anti-solvent comprises adding anti-solvent in an amount ranging from about 1/10 to about 1/2 by weight of the solvent in the polyetherimide solution.

32. (currently amended) The method of claim 28 ~~27~~ wherein the step of contacting the polyetherimide solution with the anti-solvent comprises adding anti-solvent in an amount of about 1/3 by weight of the solvent in the polyetherimide solution.

33. (currently amended) The method of claim 28 ~~27~~ wherein the step of contacting the polyetherimide solution with the anti-solvent further comprises heating to a temperature ranging from about 100° C. to about 180° C.

34. (currently amended) The method of claim 28 ~~27~~ wherein the step of contacting the polyetherimide solution with the anti-solvent further comprises heating to a temperature ranging from about 135° C. to about 150° C.

35. (currently amended) A polyetherimide resin produced in accordance with the method of claim 28 ~~27~~.